

Claims

[c1] What is claimed is:

1. A flat display comprising:

a liquid crystal molecule layer disposed between a first substrate and a second substrate;

a driving array disposed on the second substrate to control a rotation state of the liquid crystal molecule layer;

and

a light source module having a first light source, a first light-guiding plate disposed on the first substrate, and a second light-guiding plate disposed on the second substrate;

wherein the light source module is used to provide light beams such that a first image is displayed on a first side of the flat display and a second image is displayed on a second side of the flat display in cooperation with the rotation state of the liquid crystal molecule layer.

[c2] 2. The flat display of claim 1 wherein the flat display further comprises a switch device of the light source module for switching an irradiation direction of the first light source to provide light beams to the first light-guiding plate and the second light-guiding plate.

- [c3] 3. The flat display of claim 2 wherein the switch device of the light source module comprises a switch and at least a reflective plate.
- [c4] 4. The flat display of claim 3 wherein the switch is connected to a cover, the switch switches the reflective plate to rotate to a first direction when the cover is closed such that the first image is displayed on the first side of the flat display in cooperation with the second light-guiding plate, and the switch switches the reflective plate to rotate to a second direction when the cover is opened such that the second image is displayed on the second side of the flat display in cooperation with the first light-guiding plate.
- [c5] 5. The flat display of claim 4 wherein the first side and the first light-guiding plate are on a same side of the flat display, and the second side and the second light-guiding plate are on another side of the flat display.
- [c6] 6. The flat display of claim 4 wherein the flat display is installed on the cover.
- [c7] 7. The flat display of claim 4 wherein the flat display is connected to a module, and the module comprises a cell phone module or a computer module.

- [c8] 8. The flat display of claim 4 wherein the flat display is connected to a digital module, and the digital module is used to drive the flat display to display images.
- [c9] 9. The flat display of claim 1 wherein the flat display further comprises a second light source and a switch.
- [c10] 10. The flat display of claim 9 wherein the first light source is used to provide light beams to the first light-guiding plate, and the second light source is used to provide light beams to the second light-guiding plate.
- [c11] 11. The flat display of claim 10 wherein the switch is connected to a cover, the switch switches the first light source to be fired when the cover is closed to provide light beams to the first light-guiding plate such that the second image is displayed on the second side of the flat display, and the switch switches the second light source to be fired when the cover is opened to provide light beams to the second light-guiding plate such that the first image is displayed on the first side of the flat display.
- [c12] 12. The flat display of claim 11 wherein the first side and the first light-guiding plate are on a same side of the flat display, and the second side and the second light-guiding plate are on another side of the flat display.

- [c13] 13. The flat display of claim 11 wherein the flat display is installed on the cover.
- [c14] 14. The flat display of claim 11 wherein the flat display is connected to a module, and the module comprises a cell phone module or a computer module.
- [c15] 15. The flat display of claim 11 wherein the flat display is connected to a digital module, and the digital module is used to drive the flat display to display images.
- [c16] 16. The flat display of claim 1 wherein the driving array further comprises a light permeable region, the light beams guided by the first light-guiding plate pass through the light permeable region to display the second image, and the light beams guided by the second light-guiding plate pass through the light permeable region to display the first image.
- [c17] 17. The flat display of claim 16 wherein a semi-reflective film is disposed on the second substrate on a same side as the second light-guiding plate, wherein the light beams guided by the first light-guiding plate pass the light permeable region and are reflected by the semi-reflective film to display the first image, the light beams guided by the first light-guiding plate pass the light permeable region and the semi-reflective film to display the

second image, and the light beams guided by the second light-guiding plate pass through the semi-reflective film to display the first image.

[c18] 18. The flat display of claim 16 wherein a semi-reflective film is disposed between the driving array and the liquid crystal molecule layer, wherein the light beams guided by the first light-guiding plate pass through the semi-reflective region to display the second image, and the light beams guided by the first light-guiding plate are reflected by the semi-reflective film to display the first image.

[c19] 19. The flat display of claim 1 wherein the driving array further comprises a reflective region, the light beams guided by the first light-guiding plate are reflected by the reflective region to display the first image.

[c20] 20. The flat display of claim 1 wherein the driving array further comprises a partially transmissive and partially reflective region, the light beams guided by the first light-guiding plate are reflected by the partially transmissive and partially reflective region to display the first image, the light beams guided by the first light-guiding plate pass through the partially transmissive and partially reflective region to display the second image, and the light beams guided by the second light-guiding plate

pass through the partially transmissive and partially reflective region to display the first image.

- [c21] 21. The flat display of claim 1 wherein both the first light-guiding plate and the second light-guiding plate comprise a light-guiding plate having a tilt angle or a planer zigzag light-guiding plate.